

REMARKS

Claims 1 – 16 and 28, 29, and 34– 44 are pending.

Claims 17 – 22, and 30 - 33 were cancelled by Applicants in favor of a continuation / divisional application.

Claims 25 – 27 were withdrawn by the Examiner.

Claim 10 was written in an independent form to be allowable, pursuant to the Office Action of May 9, 2006

In the Office Action of May 9, 2006, the Examiner rejected claims 12, 30 - 33, and 36 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Applicants respectfully disagree with these rejections.

Claim 12 is directed to a removable element designed for shipping and storage, wherein the removable element is positioned to retain the button in the lower position (or a depressed position). The removable element is clearly shown in Fig. 2 as element 155. Furthermore, the specification clearly discloses on page 4, lines 7-10 the following:

The flush valve further includes a removable element (such as a plastic strip, a pin, or a tape) designed for shipping and storage, wherein the removable element is positioned to retain the button in the lower position when assembling the top cover.

Furthermore, the specification clearly discloses on page 16, line 17 through page 19 line 8 the following:

Top cover 150 is designed for accommodating a manual flush and saving batteries (and other electronic elements) during shipping and storage. The manual flush is performed by pressing on top button 156. The saving mode is achieved by holding down top button 156 in the depressed position using a shipping and storage strip 155, as described below. Top button 156 is designed cooperatively with button insert guide 170. Button insert guide 170 includes cylindrical region 180 designed for a magnet 181 that is displaced up and down by the movement of button 156. Magnet 181 is cooperatively arranged with a reed sensor 95 located inside electronic control module 25.

When depressing button 156, reed sensor 95 registers magnet 181 and provides a signal to the microcontroller that in turn initiates a flush cycle, as

described in PCT Application PCT/US02/38758, which is incorporated by reference. Upon releasing button 156, button spring 190 (Figs. 3 and 3A) pushes button 156 to its upper position, and thereby also displaces magnet 181. In the upper position, magnet 181 is no longer sensed by reed sensor 95 (Fig. 3A). The uniform linear movement of button 156 is achieved by using a bail wire 192 in cooperation with spring 190 (Fig. 3A).

Importantly, top cover 150 also includes shipping and storage strip 155 (Fig. 2), which is used to maintain a "sleep" mode. Plastic strip 155 is placed and assembled together with button 156 to act against the spring action of spring 190 and hold button 156 in the depressed position. While keeping button 156 in the depressed position, magnet 181 is being sensed by reed sensor 95, which in turn provides a signal to the microcontroller. Upon receiving a continuous signal from the reed sensor over several seconds, the microcontroller is programmed to disable the function of all optical and electronic elements and put them into the "sleep" mode. Therefore, having plastic strip 155 in place, puts the entire electronics of control module 25 into the "sleep" mode and saves batteries. This is used during storage and shipping. Plastic strip 155 is removed by pulling it off upon installation, which enables movement of button 156 and thus enables manual flush actuation.

Next, plastic strip 155 is removed by pulling action, which causes button 156 to pop up and move magnet 181 into the upper position. Therefore, reed sensor 95 no longer registers magnet 181, and the microcontroller provides a wake-up signal to the individual elements. The water supply can be opened and automatic flusher 10 is ready for operation. As described above, the sensitivity of the optical sensor may be adjusted by removing top cover 150 and changing the power of the source or the sensitivity of the detector while keeping optical window 132 in place. (Emphasis added)

Therefore, claim 12 is fully enabled by the pending specification.

Claims 30 - 33, and 36 are directed to a flush mechanism with a flexible member including a seal remaining stationary during movement of the flexible diaphragm between open and closed positions of the flush valve. The flexible member may a hollow tube, and there may be a spring positioned within the hollow tube. The spring may be a coiled wire. These elements are fully enabled by and described in the pending specification.

Importantly, the present application incorporates by reference PCT application PCT/US02/38758, and on page 9 line 18-19, on page 11, lines 18-19, and on page 16, lines 28-29. PCT application PCT/US02/38758 fully discloses these claim elements.

Specifically, PCT application PCT/US02/38758 fully discloses these claim elements in Figs. 15 and 15A and in the specification on page 44 line 16 through page 45 line 19, as follows:

Figs. 15 and 15A illustrate another embodiment of an automatic flusher including a flexible tube that eliminates a dynamic seal used in the flusher described in connection with Fig. 2. The automatic controller shown schematically in Fig. 15 transmitter and receiver lenses and front circuit-housing part described above. The automatic flusher includes the isolated operator 701 in a side (perpendicular) position.

The flush valve body is indicated at 10 and may have an inlet opening 12 and a bottom directed outlet opening 14. The area between the underside of the inner cover 1030 and the upper side of the diaphragm 1032 forms a pressure chamber 1038. The pressure of the water within this chamber holds the diaphragm 1032 upon a seat 1040 formed at the upper end of barrel which forms a conduit between the inlet 12 and the outlet 14.

Details of this operation are disclosed in U.S. Patent 5,244,179, as well as in U.S. Patents 4,309,781 and 4,793,588. Water flow through the inlet 12 reaches the pressure chamber 38 through a filter and bypass ring, the details of which are disclosed in U.S. Pat. No. 5,967,182. Thus, water from the flush valve inlet reaches the pressure chamber, to maintain the diaphragm in a closed position, and the pressure chamber will be vented by the operation of the solenoid as water will flow upwardly through passage 44, then into chamber 1046 and then through the passage in the flex tube as described in U.S. Patent 6,382,586, which is incorporated by reference.

The flex tube 1050 is hollow and in the form of a flexible sleeve. The sleeve includes a coiled spring 1052, which prevents the tube from collapsing due to water pressure flowing downwardly through the disc of the assembly. At its upper end, the flex tube 1050 is attached to an inner cover adaptor or another element.

Seated on top of the upper end of the guide is a refill head with the diaphragm 1032 being captured between the upper surface of the refill head and a lower surface of a radially outwardly extending portion of the disc. The diaphragm, the disc and the guide, will all move together when pressure is relieved in chamber 1038 and the diaphragm moves upwardly to provide a direct connection between flush valve inlet 12 and flush valve outlet 14. When this takes place, the disc will move up and will carry with it the lower end of the flex tube 1050. Thus, the flex tube must bend as its upper end is fixed within the passage of the inner cover 1030. However, the flex tube always provides a reliable vent passage for operation of the valve assembly.

Therefore, the above claim elements are fully enabled by the pending specification. To advance this application to a faster allowance, Applicants have cancelled claims 30 – 33 in favor of a continuation application where these claims can be pursued.

In the Office Action of May 9, 2006, the Examiner rejected claims 23, 24, and 28. 29(23), 29(24) and 34 under 35 U.S.C. §102(b) anticipated by U.S. Patent No. 5,125,621 to Parsons. Applicants respectfully disagree with these rejections.

Claim 23 is directed to an automatic toilet flush valve including a body having an inlet and an outlet, and a valve assembly in the body constructed and arranged to open and close water flow from the inlet to the outlet upon actuation signals provided by an electronic system to an actuator. The automatic flush valve includes a pilot cap defining a pilot chamber in communication with the outlet via a relief passage controlled by the actuator receiving drive signals from the electronic system. The automatic flush valve also includes a cover, mounted above the pilot cap, constructed to provide housing for the electronic system, wherein the cover is removable while maintaining water pressure inside the pilot cap and enabling replacement of the electronic system while maintaining the water pressure inside the pilot cap. The cover includes at least two parts being held together using at least one screw attachable to the pilot cap. Parsons does not disclose these elements of an automatic toilet flush valve.

Claim 24 is directed to an automatic toilet flush valve including a body having an inlet and an outlet, and a valve assembly in the body constructed and arranged to open and close water flow from the inlet to the outlet upon actuation signals provided by an electronic system to an actuator. The automatic flush valve includes a pilot cap defining a pilot chamber in communication with the outlet via a relief passage controlled by the actuator. The automatic flush valve also includes a sensor, included in the electronic system, constructed to detect a user located in front of the flush valve and designed to provide control signals to the electronic system, the electronic system being constructed to provide drive signals to the actuator. The automatic flush valve also includes a cover mounted above the pilot cap and constructed to provide housing for the electronic system, wherein the cover is designed cooperatively with the electronic system to enable sensitivity adjustment of the sensor without complete removal of the cover. Parsons does not disclose any sensitivity adjustment.

Therefore, claims 23 and 24 are clearly patentable over U.S. Patent No. 5,125,621 to Parsons.

The Examiner also rejected independent claim 1 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 5,125,621 in view of U.S. Patent No. 6,000,674 to Cheng. Applicants respectfully disagree with this rejection.

Claim 1 is directed to an automatic toilet room flush valve including a valve body including an inlet and an outlet, a valve seat inside the body, and a valve member cooperatively arranged with the valve seat, wherein the valve member is constructed and arranged to control water flow between the inlet and the outlet, and wherein the movement of the valve member between the open and closed positions is controlled by water pressure inside a pilot chamber. The flush valve also includes an external cover designed for enclosing an electronic control module comprising a battery, and a sensor, and the external cover also enclosing an actuator for controlling operation of the flush valve. The external cover includes at least two cover parts separately removable, wherein the external cover is attachable with respect to the valve body in a manner also removably attaching the control module located and sealed inside a plastic housing.

Neither Parsons nor Cheng disclose all of the above claims elements. There is no teaching in Parsons or Chang disclosing an external cover attachable with respect to the valve body in a manner also removably attaching the control module located and sealed inside a plastic housing. Therefore, independent claim 1 is clearly patentable over U.S. Patent No. 5,125,621 to Parsons in view of U.S. Patent No. 6,000,674 to Cheng.

The Examiner also rejected independent claim 2 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 5,125,621 in view of U.S. Patent No. 6,000,677 to Cheng and further in view of U.S. Patent No. 6,499,152 to Johnson. Applicants respectfully disagree with this three-reference rejection. These references not only do not disclose all elements of the claimed invention, there is no teaching provided that would suggest combination of these references.

Specifically, claim 2 is directed to an automatic toilet room flush valve including a valve body including an inlet and an outlet and a valve seat inside the body, and a valve member cooperatively arranged with the valve seat, wherein the valve member is constructed and arranged to control water flow between the inlet and the outlet, and wherein the movement of the valve member between open and closed positions is controlled by water pressure inside a pilot chamber. The flush valve also includes an external cover designed for enclosing an electronic control module comprising a battery, and a sensor and designed for enclosing an actuator for controlling operation of the flush valve. The external cover included at least a main cover body and a top cover separately removable, and the external cover is attachable with respect to the valve body in a manner also removably attaching the control module. Furthermore, both the main cover body and the top cover of the external cover are removable to enable separate servicing and replacement of the control module while maintaining the water pressure in the pilot chamber.

Neither Parsons nor Cheng or Johnson disclose all of the above claims elements. There is no teaching in Parsons or Chang disclosing an external cover attachable with respect to the valve body in a manner also removably attaching the control module. Therefore, independent claim 2 is clearly patentable over U.S. Patent No. 5,125,621 to Parsons in view of U.S. Patent No. 6,000,674 to Cheng U.S. Patent No. 6,499,152 to Johnson.

Accordingly, all pending claims 1 – 16 and 28, 29, and 34– 44 are in condition for allowance.

The Commissioner is authorized to charge PTO fees from the undersigned's
Deposit Account 502-196.

Respectfully submitted,

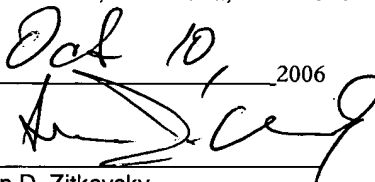


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